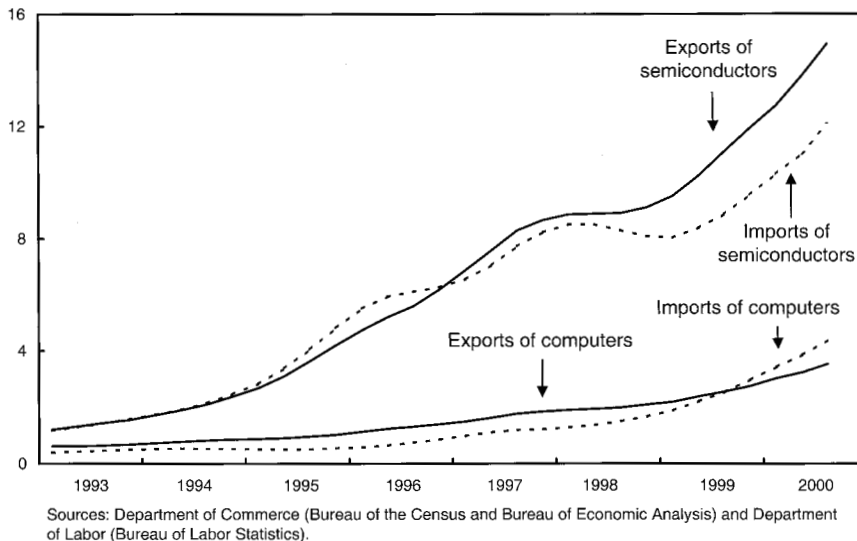


## The New Economy in a Global Context

Trade in Computers and Semiconductors  
Billions of 1999 dollars, four-quarter moving average



**Globalization has opened foreign markets to U.S. producers of information technology goods and expanded U.S. purchases from abroad.**

Participation in the global economy has made a vital contribution toward U.S. economic performance. It is no coincidence that a New Economy has emerged in the United States at the same time that our involvement in the global economy has reached new heights. Indeed, globalization and the recent advances in information technology at the core of the New Economy are inextricably linked. On the one hand, globalization has played a crucial role in promoting the technological innovation and investment and facilitating the organizational restructuring that built the New Economy. On the other hand, improvements in information technology have spurred deeper integration between the United States and the world economy.

An increasingly open global economy—which the policies of this Administration have helped promote—boosts innovation in several ways. First, it makes available the expanded markets that yield the scale economies so important for activities that require large up-front research and development expenditure. Second, it gives producers access to key imported components and machines at lower prices and in greater variety. Importing these goods allows U.S. innovators to concentrate on activities that make the best use of their knowledge and skills. Third, by heightening competition,

globalization spurs not only innovation but also the adoption of new technologies. This in turn creates still larger markets for innovative goods and thus greater rewards for those who innovate. In addition, the availability of information technologies facilitates the global reorganization of production and the continued increase in trade. It allows multinational firms to coordinate their activities and to manage supply chains on a global scale. It also brings increased numbers of buyers and sellers into global markets. Globalization has also helped support the high rate of investment that has played an important role in the current economic expansion. Increased capital flows into the United States have made it possible to maintain investment in excess of domestic saving.

An example of the importance of global markets can be seen in the increased production and use of computers in the United States in recent years. Domestic purchases of computers, peripherals, and parts grew at an annual rate of more than 12 percent from 1993 to 1999, far outstripping growth in the value of domestic shipments of these goods, which averaged only 9 percent. Filling the gap has been a rise in imports, which now account for more than 60 percent of the value of new U.S. computer purchases—nearly twice the level in 1987. At the same time, half of U.S. computer shipments are exported. The United States gains in both directions from this two-way trade in computers and parts. U.S. computer firms can lower their costs by obtaining components from efficient foreign producers, and later profit from selling finished computers in the larger global market. At the same time, lower prices for computer imports are good for consumers and for businesses.

In an age of international economic integration, continued success in the United States requires effective engagement with the global economy, strengthening international connections and building larger markets overseas. At issue is not whether we should welcome the emergence of a truly global market economy, but rather what kind of global market economy we should work to build. To ensure that globalization proceeds in a constructive way, the policies of the Administration have sought to make international institutions both more effective in helping to maintain global economic stability and more transparent in their operation.

This Administration has consistently stressed that making economic integration work means making it work for all people—and making sure that all voices are heard when policies are decided. Toward this end, even as it has adopted policies that promote globalization, the Administration has sought to address genuine and deeply felt concerns about its effects. These include its effects on the incomes of working people, the health of the environment, social and labor standards, and the divergence of incomes between rich and poor countries across the globe. The goal has been to foster an interconnected global economy that both increases prosperity and provides genuine opportunity for people everywhere.

## The Role of Trade Liberalization in Promoting Globalization

Trade policy has been an important factor in our prosperity here at home. The focus of this Administration has been on fostering a world of open markets governed by the rule of law, in which lower tariff and nontariff barriers allow all countries, including the United States, to enjoy the benefits of increased trade and investment. The achievements of the past 8 years include numerous international agreements—over 300 in all—that have liberalized both trade and investment, helping to ensure that foreign markets are open to U.S. exports. Among these are a number of especially notable accomplishments, including passage of the North American Free Trade Agreement (NAFTA), completion of the Uruguay Round of multilateral trade negotiations, enactment of legislation to extend permanent normal trade relations to China, a moratorium on customs duties on electronically delivered products, and agreements to liberalize trade in such crucial technology-related sectors as telecommunications, computer technology, and financial services. In addition, the member countries of the Organization for Economic Cooperation and Development (OECD) have benefited from an agreement to reduce subsidies in tied aid export credit competition. This agreement limits the ability of countries to make the financial aid they offer to developing countries contingent on purchases from their domestic producers, and thus helps level the playing field for U.S. exporters. A host of other bilateral and regional initiatives have also helped create more open markets. These include initiatives that encourage trade with developing countries in Africa, the Caribbean and Central America, the Middle East, and Southeast Asia. These programs not only benefit the United States through more diverse and cheaper imports and expanded exports, but also afford developing countries an important opportunity for growth through increased access to the U.S. and other markets.

The trade agreements to which the United States has been a party nearly always result in a lowering of barriers on both sides, but typically it is the foreign barriers to American firms operating abroad, rather than barriers to foreign firms in U.S. markets, that fall the most. This is true for the simple reason that, in nearly all cases, the U.S. barriers were lower to begin with. This was the case with both the Uruguay Round agreement and NAFTA, both of which removed substantial impediments to U.S. exporters. Similarly, the bilateral agreements concluded with Japan under the 1993 Framework Agreement and the 1997 Enhanced Initiative on Deregulation and Competition Policy have helped eliminate obstacles to U.S. exports to that country, in the form of border barriers and domestic regulations that unnecessarily hindered trade and investment. Opening foreign markets can

stimulate exports by providing firms with a larger arena in which to sell their goods and services. For example, one result of China's recent trade liberalization was that exports of U.S. oranges to that country grew from less than 350,000 kilograms in all of 1999 to more than 10 million kilograms in the first 9 months of 2000.

Trade liberalization has also focused on industries of special relevance for the improved communications and technology that are at the heart of the New Economy. Several multilateral treaties have been negotiated under the auspices of the World Trade Organization (WTO). The 1996 Information Technology Agreement eliminates tariffs on the preponderance of world trade in semiconductors, computers, software, telecommunications equipment, and other high-technology products. The Agreement on Basic Telecommunications Services, which came into force in February 1998, has already made an important start toward opening world telecommunications markets to competition. The Financial Services Agreement, which took effect in March 1999, similarly opens markets in banking, insurance, and securities transactions. This allows U.S. financial services companies to better serve overseas markets through investments in foreign banking institutions, brokerages, and insurance concerns. Work is now under way to expand these agreements to include new products and services and achieve further deregulation and liberalization. The United States stands to reap sizable gains from increased exports in these industries where U.S. firms are strong competitors. But all countries will benefit from these agreements through lower prices and the diffusion of knowledge that goes hand in hand with trade and investment.

## Globalization and Economic Performance

Trade and investment spur innovation and competition and thus contribute to better economic performance. This benefits society at large through the development of new goods and technologies, through higher productivity, and ultimately through lower costs for consumers and entrepreneurs.

### Scale and Network Effects

Openness to the global economy increases the size of markets. This is particularly important for the development of goods and services subject to scale and network effects, including items that are central to the New Economy, such as technology and communications. Production of these items is subject to economies of scale—that is, the average cost of production

declines with the quantity sold. Among these products are those characterized by learning curves: the more the firm produces, the more it learns how to reduce production costs, so that, on average, each additional unit costs less to produce than the one before. Scale effects are present as well for products with high fixed costs of development; because these fixed costs do not depend on the number of units produced, the average cost per unit falls as the number produced rises. This kind of cost structure describes most pharmaceuticals: developing and testing a new drug is expensive, but the cost of producing it, once the formula is known, is typically quite small. For goods like computer software and entertainment, development costs are again quite high, but the products, once created, can be reproduced relatively cheaply. Moreover, these products can be used by many consumers simultaneously without diminishing their value. The availability of a global marketplace gives firms a greater incentive to undertake the costly research and development necessary to create these kinds of products.

Globalization is similarly important in industries characterized by network effects. In most such industries, which include telecommunications, the value of the network grows as more users are added. Indeed, this value grows exponentially, in a phenomenon known as Metcalfe's law. Expansion of markets from a local or national to a global scale clearly benefits network industries. An example is the expansion of the Internet itself, which after all is a network of computer networks. As the number of global Internet users grows, the Internet becomes more valuable to all, including those who were already on line. The larger market that the growing Internet community represents provides added incentives for innovation by entrepreneurs, thus contributing to increased employment and wealth creation. The new products and services thus made available entice still more users throughout the world to seek access to the network. In this way, technology and openness combine to encourage innovation, which in turn further enhances globalization itself.

## Competition and Innovation

Firms in an open global economy can choose from a broader range of inputs, thereby increasing efficiency and lowering production costs. Consumers are also made better off from access to a wider choice of goods and services. Even a large economy such as the United States benefits from greater specialization in a global economy, because it allows Americans to pick and choose from the best ideas and the most advanced and cost-efficient sources of goods from all over the world. These include not only consumer goods but also capital goods and intermediate inputs, which make our own final products more competitive.

Globalization increases the number of competitors in a market, and increased competition compels firms to continually innovate and improve their productive efficiency. For example, in the early 1980s U.S. computer firms and other manufacturers that used memory chips in their products are reported to have preferred chips from Japanese rather than American producers, because the Japanese-made chips had lower defect rates. This led the U.S. producers to study and apply Japanese quality management techniques, so that by the early 1990s their defect rates matched those of their Japanese competitors.

## Changes in the Global Organization of Production

Together, competition, globalization, and technological innovation induce changes in the organization of firms and in the geographic division of production. The worldwide reach of the Internet and open access to global transportation networks make it easier for businesses everywhere to go global, by reducing the cost of setting up an international presence. Increased openness and improved communications expand the scope of the firm, allowing multinationals to apply advanced production techniques to larger markets and thus benefit from scale economies (Box 4-1). At the same time, the countries that host the multinationals' expanded activities gain from the transfer of technology and production experience that often accompanies such activity. To help ensure that the operations of multinational enterprises are in harmony with government policies, in June 2000 the OECD member countries, joined by several nonmembers, adopted a set of voluntary guidelines for multinational enterprises.

The opening of national economies and markets has given rise to global supply chains, in which production is spread across numerous locations worldwide, to take advantage of different countries' relative strengths in producing different goods and services. This again results in improved efficiency for firms and lower prices for consumers. U.S. producers of computer hard disks, for example, have kept most of their product development operations in the United States but have shifted production to countries in Asia to take advantage of low costs of raw materials there. (It turns out that this consideration is more important in this industry than low labor costs.) But they have not gone so far as to outsource assembly to independent suppliers; it continues to be done almost entirely by the U.S. firms themselves, through foreign subsidiaries. And these firms remain among the world leaders in innovation. This runs counter to the argument that manufacturing must be done at home to maintain competitiveness.

A different approach to production organization can be seen in the semiconductor industry, where the trend has been toward a split between "fabless" firms that design chips but do not operate fabrication facilities, and

#### **Box 4-1. A New Role for Multinational Firms**

Firms become multinational corporations when they perceive advantages to establishing production and other activities in foreign locations. Firms globalize their activities both to supply their home-country market more cheaply and to serve foreign markets more directly. Keeping foreign activities within the corporate structure lets firms avoid the costs inherent in arm's-length dealings with separate entities while utilizing their own firm-specific knowledge such as advanced production techniques. By internalizing what would otherwise be cross-border transactions, multinationals can bridge the information obstacles that often hinder trade. For example, they may be able to more carefully monitor product quality or worker conditions in factories they own than in those of contractors, or adapt the composition of output more quickly to changes in market conditions.

Improvements in information technology have reduced the impediments to exerting corporate control across borders. These advances have combined in recent years with an increased openness on the part of governments to foreign multinationals, as the economic benefits of a foreign presence to the host country have become more widely recognized. These benefits include the increased investment and the associated jobs and income that the multinational firm brings, as well as technological transfer and improved productivity. The role of multinationals in spreading industry best practices is likely to be especially important in services, many of which are not easily traded across national boundaries.

Evidence of the heightened role of multinationals can be seen in the quickened pace of foreign direct investment (FDI) in recent years. In 1999 FDI flows both in and out of OECD countries reached record levels: over 2.5 percent of their combined GDP for inflows and 3.0 percent for outflows. Most FDI is between developed countries: since 1982, 75 percent of FDI outflows from OECD countries have gone to other OECD members.

Multinationals are increasingly opting to acquire existing enterprises rather than develop a foreign presence from scratch. In developed countries from 1991 to 1997, cross-border majority mergers and acquisitions accounted for 62 percent of total FDI inflows in OECD countries. The value of these mergers and acquisitions rose from \$85 billion in 1991 to \$558 billion in 1998. The average size of such deals rose substantially, from \$29 million in 1990 to \$157 million in 1999. Acquiring a foreign firm offers a relatively quick route to enter a foreign market. It can also provide intangibles in the form of country-specific knowledge, including familiarity with the host-country business culture and regulatory structure.

*continued on next page...*

Box 4-1.—*continued*

The posts and telecommunications sector appears to be particularly fertile territory for restructuring. The value of cross-border majority mergers in this sector in the period from 1995 to 1998 was nearly 10 times that from 1991 to 1994. This reflects two factors. First, dramatic changes in technology such as the growth of mobile telephony, the Internet, and the rising importance of broadband capabilities require both increased capital and first-rate technological prowess. Firms may seek to combine in order to amass the capital and technological capabilities needed to compete. Second, a worldwide movement toward deregulation in the telecommunications industry, together with policies such as auctions of cellular licenses and the liberalization of fixed telephone networks, has allowed new entrants to compete in this once-protected sector. Complementing this, the Agreement on Basic Telecommunications Services, which took effect in February 1998, has made progress in opening global telecommunications markets to competition.

In the air transportation industry the trend has been toward global alliances rather than mergers and acquisitions. This stems from the bilateral system of route rights established under the 1944 Chicago Convention, and foreign ownership and control provisions established to protect those rights. Nonetheless, deregulation and the advent of these alliances have meant that airlines are able to serve customers through global networks. Technology has enabled these alliances to act as multinationals in some respects, with improved information technology helping to provide reasonably seamless global travel (although flights may not always be on time or provide the utmost of comfort) through the linkage of computerized reservations services. Information technology similarly allows multinational express cargo carriers to ship, track, clear through customs, and deliver goods to customers' doors—whether the address is in Beijing or New York.

“pure-play foundry firms” that produce chips from other companies' designs. Like that of hard disks, most semiconductor design is still done in the industrial countries—North America was the home of the majority of fabless firms in 1998—while production takes place mainly in Asia. This division of labor allows U.S. firms to focus on their core competencies while benefiting from improved production techniques devised by the specialized foundries. And of course, this arrangement is feasible only because new technology allows the designing firms to rapidly transmit chip designs to the foundries, because



cost-effective cargo services are available to transport finished products to markets worldwide, and because intellectual property laws are in place to safeguard the rights of designers in the producing countries.

Older, more established industries can also benefit from the use of a global supply chain. In the apparel industry, for example, it is typical for high-value-added activities such as design and marketing to be performed in the United States, with assembly carried out in locations with lower production costs. The exceptions occur mainly in niches where capital-intensive techniques can be applied, such as the production of socks, or in specialty items for which labor costs are relatively less important. This division generally results in lower prices for consumers. This is not to deny, however, that there are costs to these developments, notably in the dislocation of some U.S. workers as production has shifted overseas. The effects of this dislocation and the Administration's response are discussed at length later in this chapter.

Evidence of the increased globalization of inputs to production can be seen in statistics on the activities of American multinationals. The foreign share of inputs in production by U.S.-based parent companies more than doubled from 1977 to 1997, although domestic content continues to account for more than 90 percent of their total inputs (Table 4-1).

TABLE 4-1.— *Source of Inputs Used in Production by U.S. Multinational Corporations at Home and in Foreign Affiliates*  
[Percent of total value of inputs]

Category	1977	1989	1997
Parents in United States:			
U.S. content.....	96.0	93.2	90.8
Foreign content.....	4.0	6.8	9.2
Affiliates abroad:			
U.S. content.....	12.7	12.9	14.1
Foreign content.....	87.3	87.1	85.9

Source: Department of Commerce (Bureau of Economic Analysis).

## Better Technology, More Trade

Just as globalization spurs innovation, so, too, do improvements in technology contribute to increased globalization. Improved communications and technology, in effect, make the world smaller. They bring a wider variety of the world's goods, services, and information to consumers everywhere, and they lower the costs of cross-border transactions in goods, services, and financial

flows. These lower transactions costs should lead to increased trade and investment, which in turn lead to higher incomes. Examples of how technology lowers transactions costs abound. Firms can use sophisticated information technology to implement cost-reducing just-in-time inventory practices while managing a vast flow of components from a global web of suppliers. The cost of air freight is a fraction of what it was just 20 years ago, thanks not only to better technology but also to deregulation of global air services and the expanded use of open skies agreements. These agreements permit unrestricted service by the airlines of each country to, from, and beyond the other's territory. The United States has entered into numerous such agreements, most recently in November 2000 with Brunei, Chile, New Zealand, and Singapore.

Novel though some of these cost-saving technologies are, they are in one sense nothing new, but simply the continuation of a centuries-long procession of human innovation. Declining transport costs, for example through more efficient ship design and improved navigation techniques, have been linked to the expansion of trade in Europe at least since the Middle Ages. More recently, the introduction of standardized shipping containers and systems for handling them has revolutionized the international shipping industry, yielding enormous increases in productivity. Together with improved communications, containerization has made integrated global production and distribution networks a reality. A comprehensive list of innovations that have improved the speed and lowered the cost of telecommunications would include the telegraph, the telephone, radio, television, fax machines, and most recently the Internet.

Like the other advances in telecommunications that preceded it, only more so, the Internet transcends the barrier of physical distance and helps overcome geographic obstacles to economic integration. Its power to transmit vast quantities of information to and from individual users gives it great promise for lowering transactions costs and facilitating trade. Its commercial reach extends across borders; for example, one major on-line retailer reports that consumers from more than 160 different countries have visited its website. And the Internet allows not just information about products but some products themselves, such as software and entertainment, to be delivered electronically at minimal cost. This type of globalization clearly benefits consumers and entrepreneurs by expanding the variety of products available for consumption and use and providing easier access to low-cost suppliers, wherever they are located.

The effect that the Internet is having on international trade is difficult to estimate, in part because it is hard to accurately measure Internet usage in some countries. One analysis of trade flows found no clear effect of the Internet in 1995 or 1996, but an increasing effect in later years. This result was found after taking into account a number of other factors that influence a country's trade, including the size of its economy, its distance from other countries, and

common borders, languages, and colonial heritage. Moreover, poor countries appear to gain more from expanded Internet access than rich countries. This suggests that access to the Internet might lessen the burden of shortcomings in traditional infrastructure that presently hinder trade for developing countries. In other words, bridging the international “digital divide” between rich and poor countries can have measurable economic benefits, not just in high-technology areas but in all sectors.

The effect of the Internet on international trade might indeed be larger than even these encouraging results suggest, because that analysis covered only trade in goods—it did not include services, such as education, financial, medical, and other professional services. Yet these are likely to reap especially large benefits from the possibilities of electronic commerce. Improved communications allows for commerce in these services that were previously difficult to deliver without a physical presence.

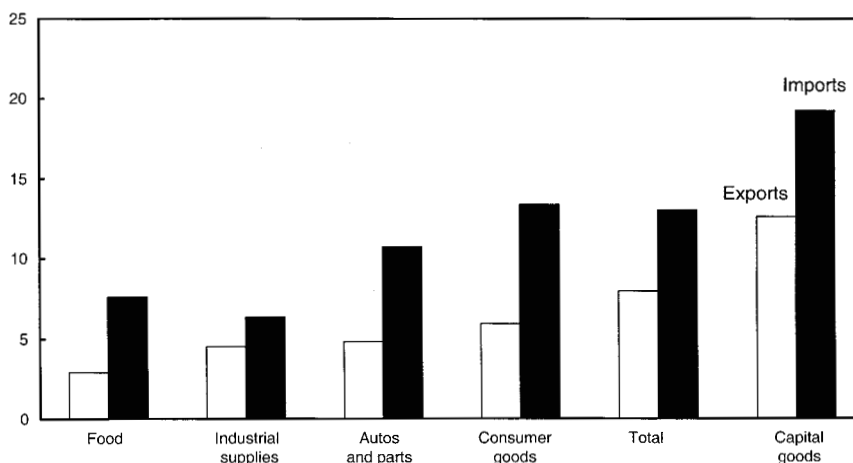
## Technology and Knowledge-Based Products in U.S. Trade and Investment Flows

The growing importance of technology in the U.S. economy is evident not just from anecdotal examples but in the broad patterns of the Nation’s international transactions as well. The clearest sign is the rapid growth of U.S. trade in capital goods, a category that includes items such as computers, machinery, and telecommunications equipment (Chart 4-1). Capital goods today make up 45 percent of the value of U.S. exports, by far the single largest component (Table 4-2). They also constitute the largest share of the value of U.S. imports. Since 1996, increased trade in capital goods has accounted for about 70 percent of the growth in the value of U.S. exports and nearly 30 percent of that of imports. Strong growth in both imports and exports partly reflects roundtrip trade, as components such as semiconductors are exported from the United States and then return inside computers. But it also reflects the role of trade in supporting investment through equipment imports. Within the category of capital goods, trade in information technology products has grown especially rapidly (Chart 4-2). Computers, semiconductors, and telecommunications goods now account for nearly half of the value of capital goods imports and exports.

There has also been strong growth in exports of services, reflecting the growing value of ideas and of knowledge-based activities. Income from royalty and licensing fees grew by 8.3 percent each year on average from 1992 to 1999, compared with 6.5 percent a year for all services exports. Business, technical, and professional services grew at an 11 percent clip over the same period, and financial services income grew on average by 19.4 percent a year. Sales of these services are examples of “weightless” trade, since the value is in the idea or

**Trade in capital goods grew more rapidly than that of the other broad categories of imports and exports from 1996 to 2000.**

Chart 4-1 Imports and Exports by End-Use Category  
Average annual percent change in volume, 1996 to 2000



Note: Total includes "other," which is not shown. Estimates for 2000 are based on data for the first three quarters.  
Source: Department of Commerce (Bureau of the Census).

TABLE 4-2.—*Changing Composition of U.S. Trade Flows*  
[Percent of total value of trade]

Category	Imports		Exports	
	1989-1990	1999-2000	1989-1990	1999-2000
Total .....	100.0	100.0	100.0	100.0
Autos and parts .....	17.7	16.6	9.3	10.6
Capital goods .....	23.0	28.2	37.8	44.8
Consumer goods.....	21.0	22.5	10.5	11.5
Food .....	5.2	3.9	9.4	6.3
Industrial supplies .....	27.2	21.9	25.8	20.6
Other .....	5.9	6.9	7.2	6.2

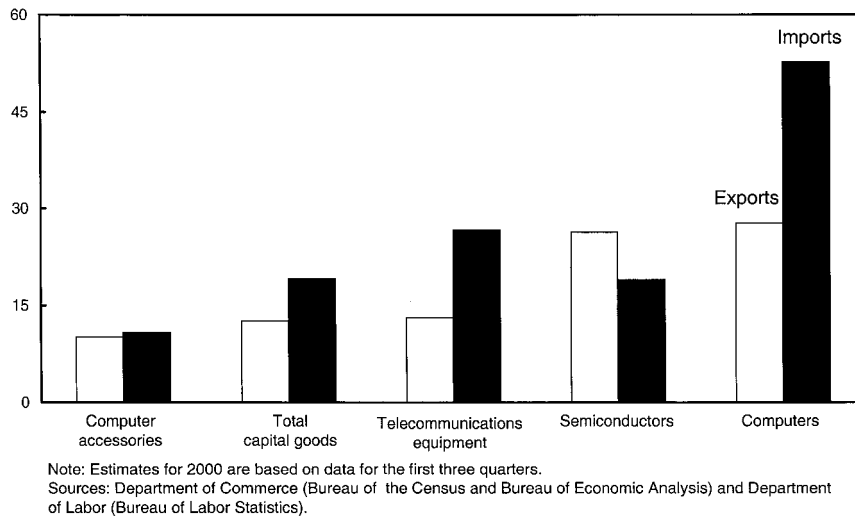
Note.—Data are on a national income and product accounts basis.  
Estimates for 2000 are based on data for the first three quarters.

Source: Department of Commerce (Bureau of Economic Analysis).

service itself rather than in a material good. Although some services, such as haircuts, are not tradable (at least under current technology), there remains substantial scope for services trade to continue to grow. In 1999 services still accounted for less than 30 percent of the value of U.S. exports and less than

**Among all capital goods, trade in high-technology products grew especially rapidly from 1996 to 2000.**

Chart 4-2 Trade in Capital Goods and Selected Components  
Average annual percent change in volume, 1996 to 2000



16 percent of imports, even though service-producing industries (excluding the government sector) accounted for 65 percent of U.S. GDP in 1998, the most recent year for which data are available. Stronger growth in our trading partners may actually favor U.S. services exports over goods exports, since there is evidence that higher income abroad stimulates foreign demand for services more than it does foreign demand for goods.

## New Challenges

The confluence of increased globalization and improvements in communications and technology have raised U.S. economic performance and contributed to our prosperity. But these developments bring with them new challenges. The rest of this chapter focuses on six such challenges:

- raising U.S. saving and thus contributing to adjustment of the current account deficit
- increasing growth in our major trading partners
- making sure that developing countries are not left behind
- adjusting to the changes at home brought about by globalization
- safeguarding the environment and labor standards, and
- addressing the challenges that technologies pose for international legal institutions.

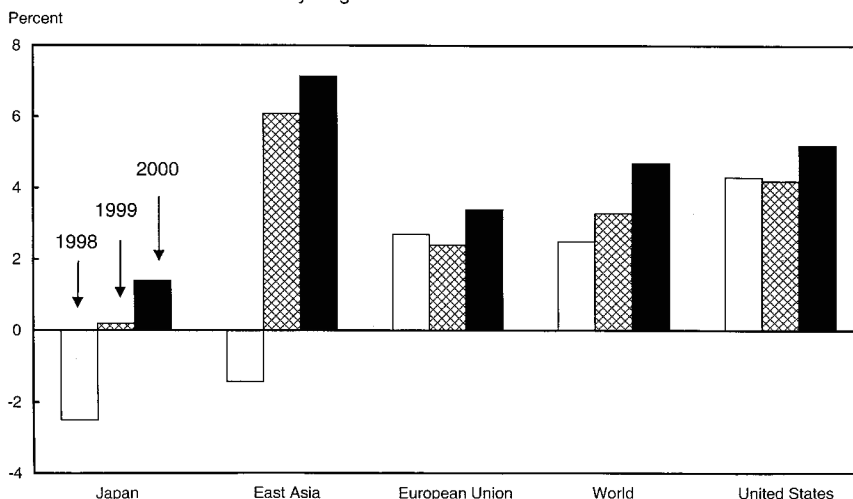
These challenges and the policy responses of the Administration are discussed below.

## The U.S. Trade Balance and Current Account

The recent rapid growth in investment and the resulting strong performance of the U.S. economy have contributed to an increase in the Nation's trade deficit. Robust income growth and increased wealth from rising asset prices have contributed to higher domestic consumption, and thus to rapid growth in imports. Growth was slower in major U.S. trading partners in Europe and Asia than in the United States in 1998 and the first part of 1999 (Chart 4-3). This contributed to weaker import demand in those regions and slower growth of U.S. exports. A strong dollar, reflecting in part capital inflows from foreigners eager to participate in attractive investment opportunities in the United States, has also contributed to the growing trade deficit by lowering prices of foreign-made goods relative to those of U.S. products. Through the first three quarters of 2000, the trade balance in goods and services was about \$270 billion in deficit. That would correspond to roughly \$360 billion for the whole year, or about 3.6 percent of GDP (Chart 4-4). Meanwhile the current account (a comprehensive measure that comprises not only the trade balance in goods and services but also net income and transfers) recorded a deficit of roughly 4.3 percent of GDP (Chart 4-5).

**In recent years, the U.S. economy has grown faster than those of many of its major trading partners.**

Chart 4-3 Growth in Real GDP by Region



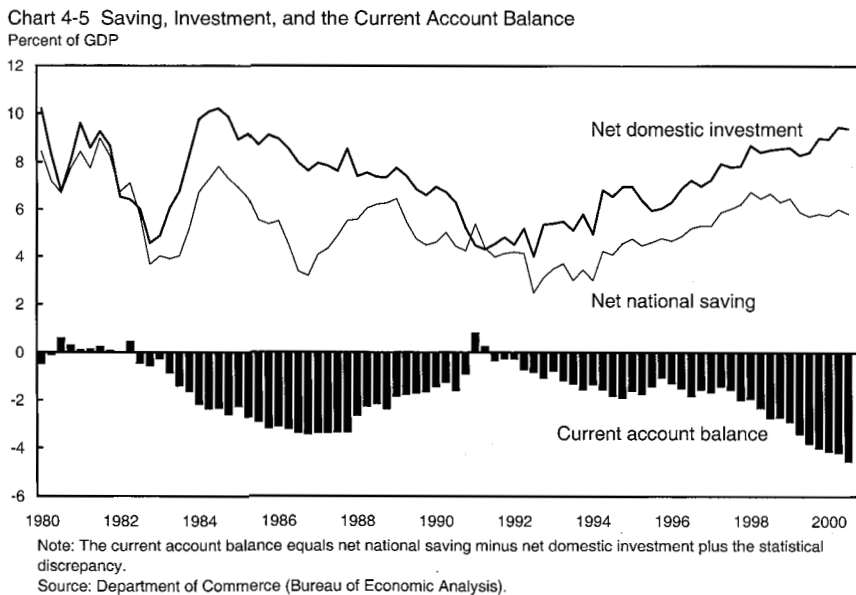
Note: Data for 2000 are estimates.

Source: International Monetary Fund.

**The trade deficit increased as the dollar appreciated in the late 1990s.**



**The increase in the current account deficit after 1995 has supported higher investment.**



The current account balance equals by definition the difference between national saving and national investment. A current account deficit reflects an excess of investment over domestic saving, and thus an inflow of foreign capital that makes up for the shortfall. The widened current account deficit reflects the fact that although net saving has risen, net domestic investment has risen even more. The share of net domestic investment in GDP (Chart 4-5) grew by 4.6 percentage points from 1992 through the first three quarters of 2000 (from 4.8 percent to 9.4 percent), while the share of net national saving rose by only 2.3 percentage points (from 3.5 percent to 5.8 percent).

What explains the willingness of the rest of the world to provide the United States with the capital inflows needed to finance its current account deficit? The answer is simply that the attractive opportunities for investment in the United States today exceed those in other countries. This can be seen by comparing the deficits of today with the comparably large (as a percentage of GDP) deficits of the 1980s. In the earlier decade, most of the inflows went to the purchase of U.S. government debt securities. The more recent inflows, in contrast, have mainly been invested in privately issued assets. Indeed, much of the inflow has come in the form of foreign direct investment (equity investment for purposes of control of the enterprise) rather than purchases of bonds or portfolio equity participation: the value of inward direct investment into the United States rose from \$51 billion in 1993 to \$271 billion in 1999.

With saving from the rest of the world continuing to flow to the United States, the U.S. net international investment position—the value of U.S. assets abroad less the value of foreign assets in the United States—will continue to turn more negative. At the end of 1999 the net international investment position was approaching a negative \$1.5 trillion, or almost 16 percent of GDP that year; foreigners held more than \$8.6 trillion of U.S. assets, while Americans held foreign assets valued at more than \$7.1 trillion. Part of the income from these international investment holdings consists of retained earnings and reinvested dividends and interest payments, which are recorded as an outflow in the current account and an offsetting inflow in the capital account. This would tend to raise the apparent magnitude of capital flows. On net, however, income on investment now flows out of the United States, as foreigners repatriate earnings on their U.S. investments by a greater amount than Americans are bringing their earnings on foreign investments back to the United States.

The availability of foreign saving has permitted the United States to maintain the high rate of investment that has expanded productive capacity and raised economic performance. This shows that foreign capital inflows are not in themselves a bad thing: it is better to finance attractive investment opportunities using foreign capital than not to undertake them at all. But our income would be even higher if that investment were financed instead by domestic



saving. Saving trends in the United States over the last several years present a mixed picture. From 1992 through the third quarter of 2000, the share of net saving by the public sector (Federal, State, and local governments) in GDP has risen by 7.8 percentage points. But this rise has been largely offset by a decline in the share of net private saving of 5.5 percentage points. Higher private saving would help to ensure the continued ability of the United States to finance domestic investment. The saving rate can be raised without threatening continued strong growth in income if the composition of demand for U.S. goods shifts, with external demand replacing some domestic consumption. In the meantime, it is important to maintain public saving, through continued fiscal discipline at all levels of government, in order to support national saving.

It is difficult to say what level of the current account balance would be most appropriate. But if some adjustment in the current account is deemed necessary, the way it is accomplished matters. It would be better to reduce the current account deficit through higher domestic saving than through lower investment, because reducing investment would mean a smaller capital stock and thus lower national income than would otherwise be the case. In the best of all possible world economies, increased growth in the rest of the world would lead to increased U.S. exports, which would compensate for the reduced domestic demand that higher domestic saving would entail, and thus maintain strong income growth in the United States. More rapid growth abroad would cause saving by foreigners to shift from the accumulation of U.S. assets to investment in their own domestic economies, made newly attractive by their increased domestic growth. The rebound in investment abroad would further spur U.S. exports, which, as we have seen, consist largely of capital goods.

Opening foreign markets can play a role in adjustment by encouraging U.S. exports. In contrast, efforts to narrow the trade deficit or the current account by raising barriers to imports into the United States would likely make the economy less efficient and thus lower national income, without necessarily increasing national saving.

## Raising Performance in Other Countries

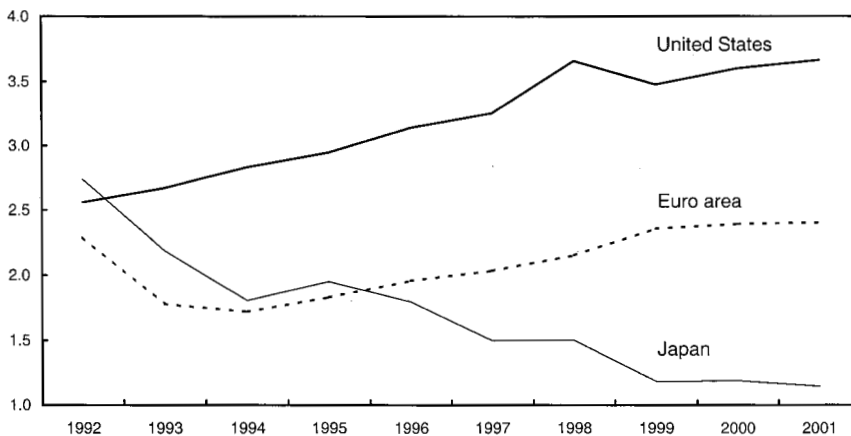
At present, the U.S. current account deficit is supporting too large a share of the global economic expansion. It would be desirable for other countries to take steps to accelerate their growth and promote a smooth return to a more balanced global distribution of growth. As this adjustment occurs, the U.S. current account deficit should return to levels in line with the historical U.S. saving and investment relationship. To ensure sustained, balanced global growth, the major industrial economies need to maintain supportive fiscal and monetary policies and push ahead with structural reforms to remove barriers to investment opportunities (including opportunities for new technologies).

The same innovations that have raised economic performance in the United States would likewise be expected to raise foreign productivity and growth as those innovations are adopted abroad. The global diffusion of innovative technology is thus one avenue through which to increase growth in other countries. Technological development is not a race, where the first to make a discovery is the only winner. The spread of our own technological discoveries to other countries leads to higher productivity and economic growth in those countries, raising their incomes and thus creating new opportunities for innovative and competitive U.S. firms to export. And when productivity rises in other countries, the prices of the goods they produce fall, and to the extent that these goods are exported to the United States, Americans benefit from lower prices and greater choice.

Throughout the 1990s, the beneficial effects of technology on productivity and growth appear to have been enjoyed most strongly in the United States. Although growth has rebounded in Europe and the emerging market economies of East Asia, these events so far appear to be cyclical rather than structural in nature. That is, recovery in these countries seems to be bringing them back up to their economic potential, but not yet accelerating the expansion of that potential. The situation in the United States has been otherwise. From 1995 to 2000, according to OECD estimates, potential output in the United States grew at an annual rate of 3.5 percent, compared with only 2.2 percent for the countries that have adopted the euro, and only 1.4 percent for Japan (Chart 4-6). Growth in total factor productivity—the

**Potential output is estimated to be growing faster in the United States than in the euro area and Japan, with the gap widening in the last few years.**

Chart 4-6 OECD Estimates of Growth in Potential Output  
Percent



Note: The euro area includes Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain.

Source: Organization for Economic Cooperation and Development.

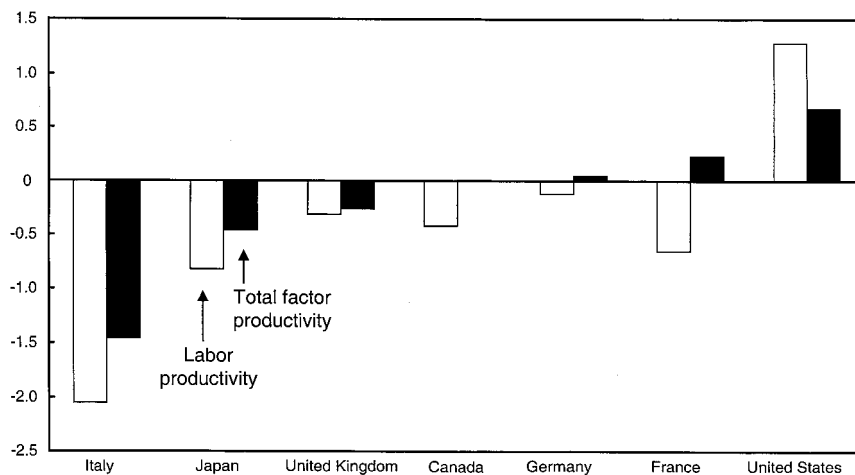
efficiency with which capital and labor are used in combination—also lags in most European and other industrial countries, with little sign of the acceleration the United States has experienced over the past several years (Chart 4-7).

The lagging pace of investment in information technology in much of Europe compared with the United States may be one reason for the divergence in trend growth. This lag is evident even after taking into account differences in the measurement of purchases of high-technology products (Box 4-2). The United States also leads other industrial countries on several measures of the usage of information technology, including numbers of telephone lines, Internet hosts, and secure servers used in e-commerce (Chart 4-8). Yet the United States is not ahead in every aspect of information technology: wireless technology has taken off in Europe far more than in the United States.

There are some signs that the use of the new technologies whose pervasiveness has so benefited the United States is beginning to approach critical mass in other advanced economies, including Germany, the Netherlands, the Nordic countries, and the United Kingdom. For example, Germany now boasts a technology-oriented stock market similar to the Nasdaq, the Neuer Markt, and is reported to have the largest European contingent of Internet enterprises, larger even than in the United Kingdom. Firms in Scandinavia are innovators in important areas of technology, notably wireless communication. Perhaps not coincidentally, the Nordic

**Growth in labor productivity and total factor productivity increased in the United States in the late 1990s, but slowed in most other G-7 countries.**

Chart 4-7 Change in Average Annual Productivity Growth from 1990-95 to 1996-99  
Percentage points



Source: Board of Governors of the Federal Reserve System.

#### **Box 4-2. Information Technology and Cross-Country Differences in Measuring Economic Growth**

The rapid rate of technological improvement in information technology products makes it difficult to distinguish between changes in prices and changes in quantities produced. Statisticians face the problem that traditional price indexes fail to adequately account for quality changes in the face of rapid technological change: a computer that cost \$2,500 in 2000 provides several times the computing power of a \$2,500 computer only a few years earlier. To account for rapid quality upgrading in computing equipment, the United States has adopted a hedonic price deflator for computers and hardware, which measures computing power as a combination of characteristics such as processor clock speed, memory capacity, and hard disk size. Using this methodology, computer prices in the United States are estimated to have fallen at an average rate of 17 percent per year since 1990, and 24 percent per year since 1997. Growth in the volume of computer sales contributed nearly 1 percentage point to real GDP growth in 1999, even though the value of computer spending in current dollars accounted for less than 0.1 percentage point of nominal GDP growth.

The use of this hedonic index makes international comparisons of information technology spending difficult, since most other countries do not use hedonic price indexes (exceptions include Canada, France, and Japan). Using traditional measures that do not fully adjust for quality improvements understates real computer expenditure and thus overall real investment. This in turn lowers the statistical measure of output and affects productivity calculations. Compared with the United States, a country using a traditional price deflator appears to produce less high-technology output for any given amount of inputs such as workers and nontechnology capital. Applying the U.S. deflator to German information technology investment, for example, results in a substantially larger measure of real investment—as much as 170 percent larger—than with the traditional deflator. Over the period since 1991, use of a hedonic price index would have implied that real investment in information technology equipment in Germany increased at a rate of 27.5 percent per year, versus 6 percent using the traditional approach.

However, even after correcting for the different statistical methodologies, investment and GDP growth in the United States remain far stronger than in Europe. A study that applied the U.S. deflator for information technology investment to France found that the contribution of this investment to growth was similar for the two countries

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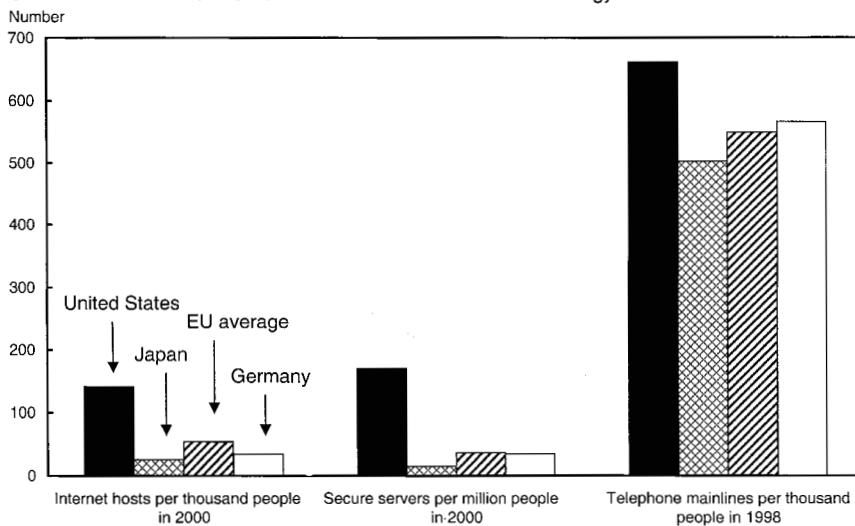
Box 4-2.— *continued*

from 1973 to 1990, but that investment then grew by twice as much in the United States from 1995 to 1998. An alternative approach found that the contribution of information technology investment to growth in France was smaller than in the United States before 1990 as well as in more recent years. Another study took the difference between the price index for U.S. information technology investment and the price index of all other investment goods and applied this to non-information technology price indexes in other G-7 countries to derive a new price index. The contribution of information technology equipment to GDP growth from 1990 to 1996 was found to be still nearly twice as large in the United States as in most other G-7 countries. Only the United Kingdom and Canada experienced contributions to growth of even two-thirds that of the United States.

The difficulty of accurately measuring the rapid technological change occurring in information technology makes international growth comparisons difficult, but it does not qualitatively affect a comparison of growth in the United States with that in many other industrial countries. The success story of the U.S. economy is more than a statistical artifact.

**The United States leads the industrial countries in several measures of information technology use.**

Chart 4-8 Indicators of the Pervasiveness of Information Technology



countries (excluding Denmark) benefited more from higher total factor productivity growth in the latter half of the 1990s than did other European countries. Meanwhile other developed countries that have lagged in productivity growth are attempting to catch up. Japan, for example, has recently taken steps to deregulate its telecommunications industry and provide incentives for firms to upgrade their information technology equipment and employee skills. Burgeoning information technology sectors have also begun to appear in some developing countries. One notable example is the development of an Indian software programming industry. However, additional policy steps are needed to ensure that these countries fully enjoy the benefits of the new technologies.

## The Importance of Institutions and Policy

In addition to removing barriers to international trade, improved economic performance requires a combination of institutions that facilitate the allocation of human and financial resources to activities with the highest rates of return. These include flexible labor markets, efficient capital markets, and government regulatory structures that encourage competition.

### *Labor Market Flexibility*

Flexibility of labor markets has been an important aspect of economic success in the United States. This flexibility encompasses both the ability of workers with desirable skills to switch to more rewarding jobs, and the ability of firms to adapt their work force to changing economic prospects. It also entails a work force that can adapt to new technologies and production techniques, businesses that effectively manage human resources, and pro-competitive government policies, such as supportive tax regimes that encourage investments in new skills and technologies. Among OECD member countries from 1980 to 1997, those with relatively low tax rates on labor income, and low costs to firms of restructuring their work force, generally had lower rates of unemployment and higher rates of job creation than other countries.

Labor market flexibility is particularly important in high-technology industries, where the pace of innovation and industry evolution is especially rapid. The important role of research and development in these industries means that sophisticated human capital—strong education, specialized skills, and the ability to innovate—becomes an essential input. Expanding firms must be able to attract skilled workers, who are the main users and producers of technology; indeed, the movement of labor between technology firms has been found to be an important channel for knowledge transfer. This includes movement of skilled workers across borders. Immigrants,

especially from India and Taiwan, have made important contributions to high-technology firms in the United States. Here too, U.S. policy has supported labor market flexibility, by allowing firms to bring in highly skilled foreign workers through the recently expanded H-1B visa program, while providing assistance for training of U.S. workers.

### *Capital Market Efficiency*

The efficiency of capital markets in the United States has also contributed to the superior economic performance we have seen. The more widespread availability in this country of equity finance, including venture capital, facilitates business creation and propels the development of new technologies. In contrast, in Japan and some European countries, banks and other large financial institutions provide most business financing, hold some firm equity, and usually exert a measure of corporate control. These differences between the two systems give rise to different incentive structures. Returns to bank loans are limited by the interest rate; returns to equity investments are determined by profits and capital gains. This makes bank lending better suited to financing low-risk activities, whereas an equity-based system has the potential to generate greater capital investment in activities where expected returns are high but uncertain.

When most job creation and investment are undertaken by large and established firms, these differences in the mode of financing are not likely to be important, since such companies finance most investment out of their own retained earnings. However, it is likely that the performance of the two systems will diverge in high-technology sectors, for at least two reasons. In the telecommunications sector, the large outlays required to finance the emerging new technologies could well exceed the financing available from retained earnings and from banks. In other areas of information technology, banks have not been especially successful in supporting the new firms that play an important role in generating innovation. These considerations put the bank-centered systems of Europe and Japan at a relative disadvantage.

In contrast, economies that have liquid, efficient capital markets tend to invest more heavily in research and development activity, and particularly in high-technology startups. Venture capital has flourished in the equity-based U.S. system as an important financing mode for risky new enterprises, since the returns on venture capital can best be realized when firms can readily issue new equity to the public. Of course, it is not impossible for information technology startups to be financed within the framework of bank-oriented systems, but such systems have had difficulty matching the success of the equity finance model. In Europe and Japan, for example, venture capital is supplied primarily through the financing arms of banks and other financial corporations. Venture capital in these countries has thus far tended to focus

on the later stages of firm development, or to finance leveraged buyouts of existing firms rather than fund the creation of new ones. The distinctions between the two systems may be eroding in continental Europe. For example, the ratio of stock market capitalization to GDP has been trending upward in many of these countries since the mid-1990s, although in most of them it remains well below the U.S. level.

The form of firm ownership and control also influences the creation and diffusion of information technology. In the “outsider” model of corporate governance common in the United States and the United Kingdom, management is given incentives to focus on stockholder returns, and minority shareholders enjoy substantial protections. In contrast, the “insider” model common in Japan and continental Europe gives more power to other stakeholders, including large ownership groups such as banks as well as employees and management itself. The insider model may allow stakeholders to more effectively monitor management efforts in a way that avoids a focus on short-term financial results. But there is evidence that in recent years the outsider model has fostered superior performance, including a more rapid pace of research and development, investment, and technological diffusion.

### *The Role of the Regulatory Framework*

The need for flexibility applies to the institutions of government as well. Regulatory frameworks must be transparent and avoid raising hurdles to the creation of new businesses. Startup firms are a vehicle for the introduction of new products and techniques, since they face a lower opportunity cost of switching to newer, better technologies. Moreover, the presence (or the threat) of new entrants limits the possibility of monopolistic behavior by incumbents. A challenge in this regard is how to distinguish regulation that is necessary to prevent anticompetitive behavior, and thus promote innovation, from regulation that hinders innovation. This can be a difficult task when large, potentially monopolistic firms are also among the most innovative.

Ensuring that domestic markets are open to competition has been found to be particularly important in the telecommunications industry. Here as elsewhere, competition leads to lower prices; in telecommunications it also spurs increased investment and network size. But it is in the nature of networks to tend toward monopoly, in part because of the scale economies discussed above. Hence regulatory authorities must be vigilant.

Privatization of state-owned telecommunications firms has also been found to lead to lower costs and increased usage. But for this to occur, privatization must be complemented by effective regulatory oversight so that a dominant firm does not impede competition by new entrants, through such means as excessive charges for connecting competitors’ calls over the “last



mile” of telephone line to homes or businesses. An inexpensive, high-quality telecommunications network is not only a basic element of the business infrastructure of any modern economy but also an important determinant of the adoption of information technology, in particular the Internet.

## Raising Incomes in Developing Countries

The global imperative to combat poverty and support economic development in the poorest countries gains added urgency today, when the AIDS epidemic, international and civil conflict, and other catastrophes threaten to reverse years of gains in many countries. The divergence in national incomes between the developed and the developing world continues not because so many countries are effectively integrating themselves into the global economy, but because so many are not. Bridging this gap remains a challenge for economic development. Meanwhile the emergence of new technologies threatens to create an international “digital divide” parallel to, and to some degree predicated on, that in economic development.

Economic integration holds out enormous potential for improving the lives of the world’s people through increased access to goods, services, and ideas. Economies that are relatively open to international trade and investment appear to grow faster than closed economies, although it is difficult to separate out the causal linkages between openness and growth. The growth-enhancing effects of economic integration are especially vital for the poorest of developing countries, because a central lesson of history has been that rapid and sustained economic growth is essential to rapid and long-lasting reductions in poverty. But for this to happen, globalization must proceed in a stable global economy, so that it can be harnessed to advance a prosperity that is shared by all.

### *Ensuring a Stable Global Economy*

Growth in global flows of private capital has accompanied and in many cases supported growth in trade. Access to global capital helps countries finance their expanding trade. It is also a vehicle for the development and transfer of new technology and a creator of new economic opportunities. But wherever there is finance, there is the inherent risk of financial crisis. In tandem with the global expansion of capital flows, therefore, policies and institutions must be developed that minimize this risk while maximizing the potential of capital flows to support rapid growth. A well-functioning system that ensures a strong and stable flow of capital to emerging economies is a crucial part of building a successful, truly global, economy.

The recent financial crises in Asia and elsewhere have underlined the economic and humanitarian imperatives of a stronger international financial architecture. The memory is still fresh of how millions of people around the

world, many of them poor people going about the business of improving their lives, instead saw their lives turned upside down when their countries' financial systems were thrown into crisis. The international community must work diligently to provide the greatest possible assurance that such crises will be less frequent—and less costly—in the future.

Making crises less frequent and less costly means having a clear understanding of what has caused them in the past. There is now widespread agreement that the financial crises of the late 1990s were caused by two elements coming together. The first was weakness in many countries' economic fundamentals, including weak banking systems, questionable investments, domestic credit bubbles (supported by large amounts of short-term external debt), unsustainable exchange rates, and in some cases, deteriorating fiscal positions. These weaknesses were thrown into relief when international investors began to reassess these countries' capacity to safely absorb large amounts of foreign capital. The second element was an element of panic, as the focus of domestic and foreign investors shifted from being the first to discover the latest new opportunities in these countries, to how to avoid being the last out the door.

This understanding of the causes of the crisis is increasingly informing the redesign of the international financial architecture. This shows itself in three fundamental ways:

- *More effective means of preventing crises.* The International Monetary Fund (IMF) has strengthened its surveillance of the global economy, with a focus on preventing the adoption of policies that create vulnerabilities and thus augment the risk of financial panic. Reform is proceeding on several fronts: toward a revolution in the transparency of national macro-economic frameworks that will make surprises less likely; toward the development of a wide-ranging framework of international codes and standards, to provide benchmarks for national policies in areas such as bank supervision and securities market regulation; and toward more systematic incorporation of indicators of liquidity and balance sheet risks in IMF surveillance reports.
- *Safer policies in the emerging market economies.* Here there are already signs of progress as a result of greater global understanding and wariness of economic risks. For example, the ratio of short-term external debt to foreign reserves has nearly halved since 1996 in those countries that experienced liquidity crises in the late 1990s. In the same countries, short-term debt fell from 34 percent of total external debt in 1996 to 21 percent in 1999. Some 14 countries have moved away from unstable pegged exchange rate systems. But constant vigilance is needed to make sure that problems do not reemerge.

- *An IMF that is better equipped for modern crisis response.* With the creation of the Supplemental Reserve Facility and the Contingent Credit Line, and more recently with the November 2000 decision of the IMF's executive board on the reform of IMF facilities, the IMF now has tools that are a match for the kinds of crises that today threaten the global economy. The design of these facilities seeks to avoid, as far as possible, distorting the incentives both of private investors and of governments. IMF policy is increasingly oriented toward providing short-term, emergency finance, priced to discourage its casual use and to encourage rapid repayment. These changes have been accompanied by efforts to increase the flow of information to financial markets and to improve communication between borrowing countries and their creditors. They also build on the experience gained in recent cases of debt restructuring, putting in practical terms the broad guidelines on private sector involvement in crisis resolution outlined by the Group of Seven (G-7) major industrial countries in July 2000.

A stable international economy is not enough to ensure rapid and sustained growth. Governments need to put in place institutions and rules that allow markets to function well. Governments also need to promote the effective rule of law, through good governance, transparent decisionmaking, and support for the emergence of a healthy civil society.

### *Overcoming the Global Digital Divide*

In the same way that a lack of access to international trade and capital markets hinders growth in the least developed countries, an issue now arises with the new networks of information. The rapid pace of technological advance threatens to create an international digital divide that leaves some developing countries lagging ever further behind the more advanced economies. This is a particular concern for less developed countries in Sub-Saharan Africa; it is less of a concern for many emerging market economies in East Asia and Latin America, which are already experiencing rapidly expanding use of technology and increased access to the Internet.

Some argue that acquiring advanced technology should be a relatively low priority for countries still struggling to meet basic needs, such as clean water and adequate health care, and to lower their poverty rates. Recent studies suggest, however, that information technology (including telecommunications) not only can address some of these basic needs, but may also generate higher social returns than more traditional infrastructure investment. The effects of information technology on growth and development are difficult to assess, but some studies have found a positive correlation between the stock of telecommunications capital and economic growth. Evidence on the

success of individual projects suggests that this association reflects more than just rising demand for technology as a country's income rises. Information technology holds great potential to raise incomes and improve the quality of education, health care, and public services. It makes it easier for individuals to both obtain and disseminate the information they need to empower themselves, and it promotes a more active civil society. Of course, information technology is not a panacea for the problems of development; each country's circumstances will ultimately govern its decision whether to invest in technology or in other projects.

Seizing the opportunities that technology offers to developing countries requires the right policies. Despite the potential for high returns, gaps in policies and institutions can lead to significant underinvestment in information technology in these countries. Obstacles to the diffusion of information technology and its applications, such as e-commerce, are in large measure the same as the impediments to economic development more broadly. These include a lack of well-developed credit markets to channel domestic saving to productive investments, deficiencies in basic infrastructure, and shortcomings in education. Moreover, institutions in many developing countries lack the capabilities to enforce property rights and provide an effective set of commercial laws. The result is that individuals and firms hesitate to invest in costly equipment and software even when the potential rates of return are high.

Developing countries also face a number of underlying problems that hinder the increased use of new technology. These include:

- *High costs to users.* At current prices, information technology may be prohibitively expensive for most potential users in developing countries. And in many countries the presence of a monopoly telecommunications provider keeps prices high and network size and usage low. However, creative financing structures and business plans can overcome this obstacle, as exemplified by thriving Internet cafés in several developing countries. Another example comes from Bangladesh, where individuals (often women) use microcredit financing to purchase a single cell phone, which they then profitably rent out to others in the community.
- *Human capacity.* A country's successful assimilation of information technology requires a generally educated populace. Developing countries cannot make full use of information technology without the right training and skills.
- *Applications.* Applications of information technology that have been successfully marketed in developed countries may not be well suited to conditions in developing countries. Local communities and nongovernmental organizations have demonstrated remarkable ingenuity in adapting

information technology to local uses such as micro e-commerce, distance education, and the dissemination of public health information. However, software companies must still be encouraged to develop applications that do not require high bandwidth or high levels of literacy or English proficiency.

Not all the elements are yet in place for market forces to close the international digital divide. Developing countries need help in narrowing the parallel gaps in policy, infrastructure, and training before they can successfully harness information technology for economic development. In 1999 the United States launched the Internet for Economic Development Initiative to provide targeted assistance in these areas to a number of developing countries. The United States has also been active in providing direct support for high-technology infrastructure in developing countries. The Leland Initiative has provided African countries with financial and technical assistance aimed at helping them benefit from increased Internet connectivity. The Overseas Private Investment Corporation has established a \$200 million credit line for U.S. companies seeking support for projects that will help developing countries close the digital divide. The United States has also provided assistance with policy development; for example, the Federal Communications Commission has helped developing countries devise appropriate regulatory regimes. The Okinawa Charter promulgated by the G-8 countries (the G-7 plus Russia) in July 2000 provides a framework within which work can proceed on policy development, human capacity building, and brokering of private-public partnerships to diffuse information. It also established the Digital Opportunity Task Force, or DOT*force*, to coordinate policy formation to implement these general principles and help catalyze resource allocation to remedy shortcomings that the private sector alone cannot.

Investment in information technology can contribute greatly to economic development. Market forces will ultimately provide the dynamism to drive information technology investment, but policymakers need to establish the conditions in which these forces can flourish.

## Adjusting to Change at Home

Globalization and the effects of technology pose challenges at home as well. Even though the increased openness of the United States to the international economy provides substantial benefits for the Nation as a whole, not everyone gains. The rewards of improved technology and increased globalization are not spread equally: for some, change inevitably means dislocation. Therefore an important complement to the Administration's international economic policy has been assistance to those here at home adversely affected by changes in technology or increased globalization.

A number of Federal programs help individuals obtain the tools they need to succeed in the New Economy. The Dislocated Worker Program provides services to workers who have lost their jobs and are unlikely to return to their previous industry or occupation, as well as to formerly self-employed persons and displaced homemakers no longer supported by the income of another family member. The available benefits include assistance with job search and placement, individual counseling and career planning, and training assistance. Some workers also receive financial support toward transportation and child care expenses. It is estimated that around 836,000 people participated in the program in fiscal 2000. Workers affected by international competition receive support from programs such as Trade Adjustment Assistance and NAFTA Transitional Adjustment Assistance. Benefits include training, job search aid, and relocation allowances. An estimated 175,000 workers were eligible for assistance in fiscal 1999; of these, nearly 40 percent were cited as having been affected by trade with our NAFTA partners.

In addition to giving financial support to individuals, government can serve as a catalyst in helping whole communities adjust to dislocation. The Administration has proposed the Community Economic Adjustment Initiative, now being implemented in a pilot program in Connecticut. This initiative would bring together resources from across the Federal Government to provide coordinated assistance and information on new employment opportunities, along the lines of the successful approach taken in response to military base closures. Assistance would be provided to communities in two stages: first to assess their resources and needs, and then to develop an economic response. Government agencies would also help connect displaced workers with enterprises seeking to bolster their work force or looking for locations in which to expand. As a further step, a Commission on Workers, Communities, and Economic Change in the New Economy, established by the President, will examine the effectiveness of Federal programs that help with adjustment and identify the best practices of employers, communities, and public-private partnerships that have responded successfully to economic dislocations.

Dislocation is an unavoidable side effect of economic growth and technological change. Economic progress—whether it results from changes brought about by globalization, technology, institutions, or regulation—affects workers in various ways, not always for the better. Wages change in industries impacted by new competition, jobs shift from industry to industry and from location to location, and the range of jobs available within a firm or factory changes as well. All these factors interact: competitive pressure, domestic or foreign, might lead a firm to adopt new technology, which in turn might eliminate the need for some workers while creating jobs for others to develop and manage the technology. Such changes in the skill mix have been the predominant factor in past changes in employment: around

70 percent of changes in employment in U.S. manufacturing as a whole in the 1980s resulted from a shift from relatively low-skilled workers to high-skilled workers within the same industry. That is, jobs did not, as a rule, move from industries that faced foreign competition to those that did not; instead the types of jobs available changed as firms shifted their labor force toward more highly skilled workers. This evidence suggests that worker displacement is largely the result of changes in technology rather than the result of import competition, since the latter would have been expected to lead to employment declines in certain affected industries rather than changes in the composition of employment.

A similar phenomenon can be observed in the behavior of multinational firms. Increased production by foreign affiliates of U.S. multinational enterprises in the 1980s and early 1990s has been found to lead to increased domestic employment—in other words, parent and foreign employment rose together, not one at the expense of the other. But here, too, the composition of jobs changed, with domestic employment shifting to jobs requiring higher skill, such as design and management, while production jobs often moved overseas. A number of studies of U.S. multinationals in the 1980s and early 1990s similarly found that the shift of production activities to developing countries had little overall effect on wages in the parent company. To be sure, these findings mean only that import competition and outsourcing did not have large overall effects on employment or wages. Behind the aggregate numbers are individual people whose lives have been disrupted by the shift toward more highly skilled workers and high-technology jobs.

The differing impact of globalization on different groups of workers is reflected in public opinion surveys, which suggest that how one perceives the effects of increased trade depends on one's level of skill. Less skilled workers are more likely to favor trade protection than are workers with relatively high skills. This is understandable: globalization contributes, as we have seen, to technological change, and technological change favors workers with higher levels of skills and education. This makes globalization especially threatening to less skilled, less educated workers. Anxiety about dislocation and job loss will thus likely remain so long as the pace of technological change remains rapid. This evidence further emphasizes the need for policies to ensure that individuals adversely affected by globalization and technological change are not left behind but instead receive help to take advantage of new opportunities created in the dynamic U.S. economy.

## Trade and the Environment and Labor Standards

This Administration has made a commitment that at the same time that trade fosters openness and prosperity, it must also protect global natural resources and be consonant with our national values. This means making

sure that trade liberalization takes account of the environmental effects of economic activity and complements policies that seek cleaner air, cleaner water, and protection of our natural heritage, while still promoting growth. It also includes making sure that trade liberalization does not hinder countries' adherence to labor standards. Indeed, growth in trade and the economy should be accompanied by respect for recognized core labor standards and the elimination of practices such as exploitative child labor.

In support of the Nation's environmental goals, the President in November 1999 issued an executive order mandating environmental review of certain trade agreements, including multilateral and bilateral free-trade agreements and major agreements in natural resource sectors. The recently signed free-trade agreement between the United States and Jordan includes provisions addressing trade and the environment and, for the first time ever in the text of a trade agreement, provisions on labor standards. (Such standards were addressed in side letters to NAFTA but not in the agreement itself.)

Increased globalization need not conflict with improved environmental standards and social protections. To the contrary, international trade can contribute to a cleaner environment, by giving all countries access to technologies and production methods that help prevent pollution and conserve natural resources. Examples include technologies that promote energy efficiency and reduce polluting emissions from automobiles and factories. Liberalized international investment policies can also contribute: multinational corporations that invest in new plants in developing countries can bring with them global best practices in environmental and labor standards.

## Challenges for Legal Frameworks

Technological change and globalization present a number of new challenges for international legal frameworks.

### *Law Enforcement*

Globalization and the possibilities created by new technology raise new challenges for the legal system in combating cross-border criminal activities. These activities include the unleashing of destructive computer viruses, violations of computer security, and the use of the Internet for the sale of illegal products, for tax evasion, and to disguise the origin of illegally generated funds. An important issue here is that of determining jurisdiction. Using the Internet, a single person with modest resources, operating from anywhere, can undertake criminal activity that has consequences for the entire world. A recent example is the proliferation of the "I Love You" computer virus, which allegedly originated in the Philippines but caused worldwide problems with e-mail systems.



To begin to address these issues, the National Plan for Information Systems Protection established the first national strategy for protecting computer networks from deliberate attack, and the Partnership for Critical Infrastructure Security was set up to maximize cooperation between government and private sector initiatives in the area of cybersecurity. The G-8 countries have also agreed to work together to combat the use of the Internet for international criminal activity.

The same improvements in technology and communications that have made global capital flows more liquid also pose new challenges for law enforcement. A computer network that can efficiently transfer massive amounts of capital to productive uses can with equal ease transfer funds obtained illicitly without being detected. The challenges include both tax evasion and the illegal practice of money laundering, in which individuals seek to disguise the origin of funds generated through criminal activity. To combat these activities within an international framework, the United States has participated in the Financial Action Task Force on Money Laundering (FATF), a multilateral group that develops recommendations covering criminal justice systems, law enforcement, financial market regulation, and international cooperation. The FATF took a major step forward in June 2000, when it identified 15 jurisdictions as noncooperative in the fight against money laundering. That action prodded several of the listed jurisdictions to take steps to combat the practice. Meanwhile the finance ministers of the G-7 countries announced the coordinated issuance of advisories to their domestic financial institutions, urging them to give enhanced scrutiny to transactions involving the identified jurisdictions.

### *Taxation*

The growing globalization of financial transactions also raises issues for taxation, because technological advances in this area can facilitate tax evasion as well as tax avoidance. Tax evasion is any effort to escape the payment of taxes actually due, and is illegal. The OECD has taken steps to combat tax evasion in cross-border transactions, notably by promoting the exchange of information among national tax authorities. This includes evaluating barriers to the effective exchange of information as well as examining ways in which information technology can be used to combat the problem. Tax inspectors from the OECD countries regularly meet to share information about the detection of evasion and avoidance schemes in financial transactions.

Tax avoidance, in contrast, is the arrangement of one's affairs so as not to incur taxes on one's economic activity in any national jurisdiction. Unlike tax evasion, tax avoidance is not illegal per se—indeed, a major reason why it exists is that some countries actively encourage it, by setting up preferential tax regimes to attract multinational corporations. However, tax avoidance

can distort the global allocation of capital and lead to an unequal distribution among countries of the burden of raising tax revenue. The United States has participated in OECD initiatives to identify and limit policies that give rise to harmful tax avoidance and erode countries' tax bases. Such policies include the lack of effective exchange of tax information with other countries, lack of transparency within national tax systems, and discrimination in favor of foreign investors. OECD members have committed not to introduce new measures that strengthen such features of their tax systems, and to remove the identified harmful features by April 2003. The initiative has also identified 35 jurisdictions as tax havens—locations in which the tax regime facilitates harmful tax avoidance. Six jurisdictions examined as tax havens but not included on this list have already agreed to eliminate harmful features of their tax regimes by the end of 2005. The 35 listed jurisdictions have been given the opportunity to consider such cooperation in advance of a July 2001 publication of a list of uncooperative tax havens, and the adoption by OECD members of policies aimed at directly addressing the concerns thus raised.

Tax practices will also have to evolve to address the new possibilities of a globalized economy. For example, a software product might be conceptualized in the United States, programmed in India, manufactured in Singapore, and then sold all over the world. In such situations it may be difficult to allocate the resulting income in an accounting sense for purposes of assigning tax liability. This issue arises as well with electronic commerce. The global nature of the Internet confounds present definitions of geographic origin and even of what constitutes a transaction. This complicates both the identification of the jurisdiction to which taxes are due and the collection of those taxes. Because the structure of the Internet makes it difficult to trace the identity or even the location of those involved in a taxable activity, national authorities are understandably concerned about the erosion of revenue as activities shift away from “bricks and mortar” firms to amorphous entities operating in cyberspace. Indeed, countries have already encountered difficulties in assigning and collecting taxes on goods ordered through the Internet but delivered in physical form.

Future trade agreements will have to address the status of cross-border trade in electronically delivered products, many of which combine features of both goods and services. To foster growth in electronic commerce, the Administration led the 1998 initiative in the WTO in which members agreed to place a temporary moratorium on duties on electronic transmissions. But electronic commerce is transforming what was formerly trade in goods, such as software diskettes or music on compact disks, into the bits and bytes of purely electronic transmissions. Under the 1998 moratorium these transactions escape international duties, even though otherwise identical products delivered in physical form face the customary tariff regime.

The leaders of the Asia-Pacific Economic Cooperation countries, in their November 2000 Brunei declaration, called for a WTO task force to address the treatment of these items in international commerce.

### *Intellectual Property*

Protection of the intellectual property generated by innovation is crucial to preserving the incentives for the creators of knowledge to continue to innovate. In an international context, differences in legal frameworks and social attitudes toward property rights for these intangible goods can make such protection difficult to establish or enforce. The Administration has been instrumental in pushing for international standards of intellectual property protection, notably through the Trade-Related Aspects of Intellectual Property Rights Agreement included in the Uruguay Round agreement. That agreement has led most U.S. trading partners to adopt modern laws to protect intellectual property and improve enforcement. In addition, the Administration has continued the rigorous review of our trading partners' intellectual property protection. This includes use of the Special 301 provision of U.S. trade law, under which the United States identifies countries that do not provide adequate and effective protection of intellectual property or that deny equitable market access to U.S. holders of intellectual property. Enforcement has been a priority. Since 1996 the United States has filed 14 intellectual property-related complaints with the WTO against countries with lax intellectual property laws. These actions have paid off in increased U.S. exports to countries that are technology imitators. The U.S. Patent and Trademark Office has also provided assistance to numerous foreign countries seeking to improve their intellectual property systems.

The Administration has also taken steps to assist developing countries in addressing certain critical health issues peculiar to those countries, while encouraging the implementation of international treaty obligations concerning intellectual property rights. The United States is helping developing countries gain access to essential medicines through the Millennium Vaccine Initiative, which is designed to accelerate the development of vaccines for such diseases as AIDS, malaria, and tuberculosis. These are diseases that disproportionately affect poor countries and to which private firms might not otherwise devote concentrated research efforts. The initiative includes a proposal for sharply increased funding for disease and vaccine research, as well as \$50 million for the vaccine purchase fund of the Global Alliance for Vaccines and Immunization, a \$1 billion tax credit for sales of new vaccines, and the securing of over \$150 million in vaccine donations from U.S. corporations. The Administration has also called on multilateral development banks such as the World Bank to increase their concessional lending to basic health care services by \$400 million to \$900 million annually. In addition, a joint initiative of the U.S. Trade Representative and

the Department of Health and Human Services is seeking ways to provide direct and effective assistance to developing countries to help them effectively address major health crises.

## Making Globalization Work

The continuing challenge for international economic policy will be to ensure that globalization proceeds in a way that allows the United States and the rest of the world to enjoy its benefits, while at the same time seeing that the gains are universally shared. Policies aimed at continued liberalization of capital, labor, and goods markets will help speed economic growth, the diffusion of technology, and the expansion of international trade and investment. It is all too easy—and wrong—to frame the choice as one between unfettered, unregulated global capitalism on the one hand, and protectionism and self-imposed isolation on the other. The reality is more comforting, but also more complicated. We can build a vibrant, more inclusive global economy, but it means finding some way between these two extremes.

Building the right kind of integrated global economy depends on the success of the international community in developing an institutional framework in which global integration can take place and in providing assistance to developing countries so that they benefit from it. To help maintain a stable international economy, the Administration has made considerable efforts to ensure that multilateral institutions such as the IMF, the World Bank, and the WTO foster economic growth and operate in a transparent manner that promotes economic and social harmony (Box 4-3).

### **Box 4-3. Reforming International Institutions**

The United States has taken the lead in efforts to make sure that international institutions such as the IMF, the World Bank, and the WTO are equipped to meet the challenges presented by changes in the global economy.

The IMF has taken several important steps, among them to:

- increase dramatically the transparency of its operations
- strengthen its surveillance of member countries' policies, in particular with a view to reducing vulnerability and encouraging implementation of internationally agreed best practices in areas such as banking supervision and data dissemination

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**Box 4-3.—*continued***

- increase the focus on poverty reduction and growth in its support for the poorest countries, and
- streamline its financing instruments, discourage persistent reliance on IMF lending, and encourage early repayment.

The United States has also helped promote important dialogues on international financial issues between industrial and developing economies through forums such as the new G-20 finance ministers group.

In the World Bank and other multilateral development banks, policies and practices have similarly evolved in response to the challenges of globalization. There is now broad agreement that good governance, participation of civil society, country responsibility for sound development strategies, performance-based lending, and effective coordination are key pillars of development assistance. The United States has been a leading advocate of a greater emphasis on the policies that most contribute to poverty reduction and is promoting an agenda for reform that includes:

- greater selectivity in lending, across both sectors and countries
- multiyear operational frameworks that would map out commitments to support governments in tackling social, institutional, and economic barriers that prevent the poor from contributing to and benefiting from growth
- expansion of the provisioning for global public goods, which tend to be underfinanced and undersupplied, particularly in areas where the benefits accrue predominantly to developing countries
- establishment of performance-based frameworks for the allocation of resources to borrowers, and
- increased transparency and accountability, including a presumption of openness in information disclosure policies and a serious set of internal controls that ensure that policies are clearly defined and consistently applied.

The United States is seeking to make the WTO more transparent and thus better understood. The avenues being explored include crafting an agreement among members to provide for more rapid release of documents, ensuring that citizens and nongovernmental organizations can file amicus briefs in dispute settlement proceedings, and opening these proceedings to public observers. As a first step, the Administration has offered to open any dispute panel in which the United States is involved, provided the partner to the dispute also agrees.

To assist the poorest countries, the Administration has also pressed international institutions to focus on increased provision of global public goods such as environmental protection and control of infectious disease. The Administration has also worked to offer debt relief to heavily indebted poor countries serious about undertaking economic reform.

Successful globalization requires a parallel international process of harmonization of national rules, including rules governing the financial system. Such an effort has been going on largely silently for many years in the central banking community: for example, a revision of the Basel capital accord of 1988 is now under way. More recently, in the wake of the Mexican and Asian financial crises of the 1990s, these efforts at harmonization have accelerated, with a focus on the role of international standards and codes in the discussion of reform of the international financial architecture.

## Opening Markets to Trade and Investment

Continued progress in opening markets to international trade and investment will contribute to increased growth. One possible direction is to revitalize efforts to expand on the Uruguay Round agreement through a new round of multilateral trade liberalization. Even without a new multilateral round, however, the challenge remains of building on the landmark trade agreements of the past 8 years. This includes extending the Information Technology Agreement to cover a wider range of high-technology products and to begin to address nontariff barriers, and expanding the market-opening initiatives in services trade under the Financial Services Agreement and the General Agreement on Trade in Services. Increased market access for services is particularly important for the United States given the rising importance of services in U.S. exports. Much work also remains to be done in liberalizing trade in agricultural products. Steps to be taken include lowering tariffs, improving U.S. access to potential markets, and reducing trade-distorting domestic supports and export subsidies. An important priority is to remove barriers to trade in biotechnology products, which offer great promise to make agriculture both more productive and friendlier to the environment (Box 4-4). Continued progress in the accession of new WTO members will also help liberalize global markets by extending the reach of WTO disciplines.

As this chapter has argued, trade policy that leads to greater openness helps ensure competition in domestic markets. Although this puts pressure on certain domestic interests—notably on stakeholders in industries newly exposed to international competition—society at large is the real winner, through expanded choice and lower prices for goods and services. This is likely to be particularly true in sectors such as information technology, where lower prices

#### **Box 4-4. The Global Promise of Biotechnology**

Agricultural biotechnology based on the application of cellular and molecular biology, by dramatically improving the productivity and environmental sustainability of global food production, has the potential to usher in a new agricultural revolution. Biotechnological methods can be used to increase a plant's ability to control pests and disease or tolerate environmental stress, or to enhance food qualities such as flavor, texture, shelf life, and nutritional content. Biotechnology can also be used to develop diagnostic techniques for testing food safety, to genetically incorporate specific proteins into plants for harvesting as pharmaceuticals, and in animal husbandry to diagnose disease, promote growth, and develop vaccines. Perhaps the greatest gains from agricultural biotechnology are in store for developing countries, where an estimated 840 million people, or 13 percent of the global population, are subject to uncertain food supply, including 200 million estimated to suffer from malnutrition. Use of drought-tolerant, pest-resistant, and nutrition-enhanced crops leads to improved yields and thus enhances food security. Moreover, since their introduction in 1996, the use of genetically modified crops has allowed insecticide and herbicide use in those crops to be reduced in the United States. Lower reliance on toxic insecticides has important benefits for farm workers and wildlife and may reduce the dietary exposure of children and adults to these chemicals.

Applications of agricultural biotechnology have not been developed and introduced as rapidly as medical applications. In part this can be attributed to the uncertain economics of new crops and the need to evaluate risks to human health and the environment. The latter concerns are reflected in consumer resistance to biotechnology products, especially in Europe. By 2000 about 70 million acres of transgenic crops were under cultivation in the United States, out of more than 255 million total acres planted with major crops. However, several U.S. farm and commodity groups have alerted their members to potential economic risks from planting biotech crops. These risks are increasing as some food processors have banned genetically engineered crops from their products. Increased economic risk is also reflected in other countries' export restrictions on certain agricultural products derived from biotechnology. For example, a lengthy EU approval process and a virtual moratorium since 1998 on bioengineered grain varieties were significant factors behind the 90 percent decline in the volume of corn exports to the European Union in 1998. Restrictions on agricultural commodities and food products derived from biotechnology in industrial countries have raised

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*Box 4-4.—continued*

concerns in developing countries as well. However, wide differences exist within the developing world, with some countries strongly embracing the technology for reasons of food security and other potential economic gains, while others have shown reticence.

A central goal of this Administration has been to ensure that decisions on the use and regulation of biotechnology products are made on the basis of scientific evaluation—a principle enshrined in the Agreement on Sanitary and Phytosanitary Measures concluded as part of the Uruguay Round. The agreement requires that food, animal, and plant health and safety regulations that affect trade flows be based on scientific evidence. The Codex Alimentarius of the United Nations' Food and Agricultural Organization provides a universal food standard that may be used as a basis for countries' regulatory measures. Scientific evaluation is the appropriate basis on which to define which measures are appropriate to achieve the legitimate goal of public health protection.

The United States continues a more than 20-year program to evaluate the implications of scientific advances such as biotechnology on public health. This includes assessment of the long-term impacts of genetically modified foods on human health and the environment. The National Academy of Sciences has undertaken a series of projects to examine the efficiency and integrity of U.S. biotechnology regulation. These include analyses of the assessment and monitoring of environmental risks and a broad review of available evidence on human health effects associated with genetically engineered foods. The Council on Environmental Quality and the Office of Science and Technology Policy are coordinating an interagency assessment of Federal environmental regulations pertaining to agricultural biotechnology. As a complement to these two steps, the Administration has also called for an expanded program of research focusing on current and future biotechnology safety issues.

that lead to increased network usage will have positive spillovers for the entire economy. In many developing countries, these are also sectors with dominant local firms for which foreign entry is likely to provide the only sustainable competition. Continuing efforts to open foreign markets to U.S. exports can thus lead to a win-win situation for the United States and its trade partners. To make this happen, it is vital to ensure that the market-opening provisions of trade agreements are fully implemented and U.S. trade laws vigorously enforced. Efforts at enforcement have included recourse to the improved dispute settlement mechanism at the WTO and, at home, creation of a trade compliance center at the Department of Commerce.



Arguments for the benefits of open markets apply with equal force here at home. Here the task is to extend the decades-long process of reducing U.S. trade barriers, particularly those faced by the least-developed countries, while spreading the benefits of trade liberalization as widely as possible and taking care that the costs of adjustment are not borne solely by a few. Substantial progress has been made in this regard, including the elimination of tariffs on some 2,000 items. Moreover, through the Generalized System of Preferences, the United States provides duty-free access to some 4,600 items from developing countries. This program promotes economic growth and development in these countries by stimulating their exports. Additional liberalization has been targeted to particular regions, including Sub-Saharan Africa through the African Growth and Opportunity Act, and the Caribbean through the Caribbean Basin Trade Partnership Act.

One challenge for trade policy is to know when to do nothing—to resist the inevitable domestic pressures for protection from imports while at the same time enforcing U.S. trade laws that aim for trade to be free and fair. The political economy of trade protection is well understood: the benefits of trade liberalization are spread over a large number of consumers, each of whom gains only a little, whereas the beneficiaries of trade restrictions tend to be more concentrated and thus have greater incentives to push for protection. The challenge for policymakers is to remain focused on the benefits of free trade while helping those individuals and communities adversely affected by change.

## Conclusion

Access to global trade and investment flows has played a vital role in creating the New Economy in the United States. Openness gives us crucial inputs of goods and capital that have lowered costs and raised efficiency. And the availability of the larger world market allows U.S. firms to enjoy scale economies and thus increases the rewards from innovation. The achievements of the past 8 years have provided solid momentum toward opening markets and expanding trade. Building on this progress is vital for both the United States and the rest of the world. Continued globalization is central to ensuring that the diffusion of technology and knowledge to other countries leads to improved economic performance on a global scale, mirroring what has already occurred in the United States. Stronger world growth is in the profound national interest of the United States. Global prosperity is not only likely to result in increased U.S. exports and continued strong growth in domestic employment and income; it can also be a major contributor to international harmony.